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Delinquency and Amphetamines

By P. D. SCOTT and MONAMY BUCKELL

In a survey of 612 young people remanded in the London area during 1964, positive urine tests were found for amphetamine for 18 per cent of the 558 boys and 16 per cent of the 54 girls examined (Scott and Willcox, 1965). This paper presents the findings of a similar type of survey carried out in the same remand homes five years later.

The present study was made with the same age groups during the same time of year as the ealier investigation. The same routines were used for urine collection, but this was restricted to referrals on two days of the week only, and the numbers concerned are consequently much smaller, namely 69 boys and 26 girls.

The gas-chromatographic technique of Beckett and Rowland (1965) was used for the detection of amphetamine and methylamphetamine; all urine specimens were tested with no preliminary screening. This method is specific for amphetamines and considerably more sensitive than the combination of preliminary screening for 'amphetamine-like substances' followed by paper chromatography that was used in the 1964 study. The 95 specimens that were obtained in the 1969 study were put through our present drug screening system, which is sensitive to 0·3 μg. amphetamine per ml. using 10 ml. of urine.

With such a radical change of methods in the period between the two studies it was necessary to compare the performance of the two techniques before attempting to draw any conclusions. Ideally, this comparison should have been made on the remand home specimens. This was not done, as the true nature of the exercise was not made known to the laboratory until too late. The old and new methods were, therefore, compared on a group of 40 urine specimens assembled for the purpose: 35 drug-containing urines from patients attending the Maudsley Hospital Drug Dependency Out-patients or from in-patients of the Drug Dependence Unit at Bethlem Royal Hospital and 5 control urines from laboratory staff.

The results of the tests on the remand home specimens were:

Boys	69 tested	3 positive amphetamine (4·3%)
Girls	26 tested	2 positive amphetamine (7·7%)

No methylamphetamine was found in any of the 95 specimens.

Comparison of analytical techniques

Group 1. Control urines (n. 5)

New method. No amphetamine found in 5 specimens.

Old method. Amphetamine-like substances (ALS) ranged from 50–80 μg. per 100 ml. No further analysis done.

Group 2. No amphetamine content but containing other drugs (n. 15)

New method. No amphetamine detected by gas chromatography; the presence of other drugs was confirmed in all samples by the thin-layer chromatography methods currently in use in our laboratory.

Old methcd. Five of the 15 samples were reported as containing amphetamine. These false positive results came from patients taking chlorpromazine (1), 'phenothiazine' (1). Amitriptyline (2) and antabuse (1). In 7 of the 15 the presence of a drug other than amphetamine was detected by paper chromatography.

Group 3. Amphetamine only (n. 5)

New method. Five specimens positive by gas chromatography.

Old method. Three of the 5 specimens were reported positive for amphetamine. One of the two false negatives had an ALS level of 315 but no amphetamine was found on paper chromatography; the other false negative sample was not submitted to paper chromatography because the ALS content was only 25 and the procedure excluded all samples with ALS of less than 200. In two of the specimens ampheta-

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mine-positive by paper chromatography the presence of another drug was reported, though none had been found by our present screening methods.

Group 4. Amphetamine plus another drug present (n. 15)

New method. Amphetamine found by gas chromatography in 15 specimens. These specimens were also shown by analysis to contain: morphine (4), morphine + methadone (1) morphine + barbiturate (1), methadone (1), chlorpromazine (2), amitriptyline (2), Stelazine (2), Stelazine, Disipal and Melleril (2).

Old method. In 7 of the 15 specimens the presence of amphetamine was reported; in 3 of these 7 positives another drug was also thought to be present. All 15 showed ALS above 200; in 8 of the 15 paper chromatography suggested the presence of a drug other than amphetamine.

Discussion

At first sight, this second survey of the situation after an interval of five years seems to show a striking decrease in amphetamine usage in the group investigated. In spite of the limitations of the older technique we feel that this decrease is real and may well be even greater than our results would suggest. The success rate for amphetamine detection by the old method is not as good as that achieved by gas chromatography so that low concentrations could have gone undetected. The old method would have given false positives if the subjects were taking other drugs; this was known at the time and careful enquiry was made resulting in exclusion from the survey of several boys known to be taking authorized drugs. In only 8 of the 612 specimens analysed was the presence of another drug suspected from the paper chromatography (see Tables in Scott and Willcox, 1965). Though the possibility of false positives cannot be completely ruled out, it would seem that had such occurred they could only have been a very small proportion of the whole and would certainly not have reduced the 17 per cent level of positives found in 1964 to the order of 5 per cent found in 1969.

We can find no other reports supported by laboratory studies from five years ago. Hart and Nation (1966), using interrogation, only arrived at rather similar results to the Scott and Willcox (1965) figures, namely 16 per cent and 20 per cent respectively for 163 remanded girls and 83 who had been committed to Approved Schools, both groups studied in the London girls' remand home and classifying centre.

A much lower incidence of amphetamine taking is reported in three later studies, two of these supported by urine testing.

Backhouse and James (1969) submitted 290 boys in a detention centre in south-east England in 1967 to a 'questionnaire-type structured interview', and found that 8·3 per cent admitted to using amphetamine-type drugs. Cockett and Marks (1969), investigating amphetamine-taking among young offenders in 1967–8, analysed 972 urine specimens collected in a London remand centre. All specimens were examined by thin-layer chromatography and the positive amphetamines so found were confirmed by gas chromatography. In this series 6·9 per cent of samples were positive for amphetamine or methylamphetamine.

Briscoe and Hinterberger (1969) analysed 1,588 urine specimens in a survey of amphetamine usage in the Sydney community. Amphetamines were detected by a method involving benzene/amyl alcohol extraction of urine at pH 10, re-extraction and concentration into hydrochloric acid, paper chromatography and exposure of the paper to iodine vapour. Positive or doubtful results were confirmed by preparation of 2, 4-dinitrophenyl derivatives and reverse phase paper chromatography. 217 specimens from Child Welfare Department Institutions were examined, giving 6·1 per cent of positives among the boys and 5·1 per cent for the girls.

The clinical impression supports the biochemical finding that London delinquents are much less interested in amphetamine drugs than they were. Throughout the period of the second study, one of us, constantly involved in assessing boys remanded by juvenile court magistrates (PDS), did not see a single boy who injected himself with methylamphetamine, despite the fact that Hawks and his colleagues (Hawks *et al.*, 1969) were at that time impressed with the frequency of amphetamine psychosis in London youths; this is consistent with idiosyncrasies of cultural groups within the community.

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In retrospect it seems probable that the 1964 study coincided with an epidemic of amphetamine taking at a time when the drug was very readily available in tablet form. Since then the Drugs (Prevention of Misuse) Act has made it an offence to be in unauthorized possession of amphetamine-type drugs, and these drugs are now much more difficult to obtain, particularly for relatively impecunious youngsters. Sadusk (1966), writing about America, states that 800 million amphetamine tablets are manufactured annually and that half these are distributed illegally, while Solursh and Clement (1968) state that in North America the illicit manufacture of amphetamine exceeds by 3 to 10 times the commercial legal production. Toronto, they say, had at least four 'meth factories', two of them in appartment bathrooms. The diminishing figures of urine-positive subjects found in our studies suggest that supplies of this order are not available to London youths.

The 1964 study, conducted at the height of amphetamine popularity, showed that in comparing known amphetamine-taking delinquents with those whose urine was negative no significant differences in type, severity or frequency of crime, nor in social and personal factors, could be demonstrated. Amphetamine taking by mouth seemed a benign phenomenon, and the present greatly reduced incidence confirms that it was so. Hidden within the majority, however, was a small nucleus of malignant takers characterized by unsatisfactory backgrounds, severe personality disorders, and a lack of control of their use of the drug. It might be expected that, as the epidemic, 'craze', or subcultural 'fashion' for amphetamine expended itself, the proportion of the malignant nucleus might become greater, and that social and personal differences between takers and non-takers would begin to be apparent. This was so to a small extent in the Cockett and Marks study, and also in the present study, although the group is small. Our present numbers are too few to permit firm conclusions but are nevertheless suggestive. Whereas in a sample of 50 urine-positive boys in 1964 there was no case that could be described as 'malignant', in the 1969 group two, and possibly all three of the amphetamine takers, similary selected from a sample of 69 boys, could be so described. On the other hand, neither of the two 'positive' girls were found to be particularly disturbed.

It would seem that, whether because of difficulty in obtaining the drug or for other reasons, amphetamine taking in London is now very much less a part of the 'deviant subculture', and that young males who do it are more likely to be influenced by pre-existing personality disturbance. In future studies both cultural trends and personality factors need to be taken into consideration.

Summary

Amphetamine analysis was carried out on urine specimens obtained from 69 boys and 26 girls on admission to two London remand homes. The results are compared with those of a similar study made five years earlier; the reasons for the decreased incidence of positives are discussed and the presence of a higher proportion of 'malignant' users is noted. This finding is discussed in relation to other published surveys, and it is suggested that future studies must take notice of both cultural trends and personality factors.

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Postscript

Since this paper was submitted, M. Bejerot of Sweden, in a paper entitled 'A socio-medical classification of drug addicts' (1970, Lakartidningen 67.21. 2413–2429), has pointed out that drug epidemics may affect small groups peripherally placed in society, but that as the epidemic spreads social barriers disappear. Epidemic drug addicts may display a different disease to that in 'single' cases, even though the same drug is used. The areas of difference lie in geographical distribution, age of starting, pre-morbid personality, resistance and susceptibility, mechanisms of initiation and spread, and in the outlook, treatment and prevention.

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